BRUHAT BANGALORE MAHANAGARA PALIKE

MEASUREMENT SHEET

RA 1ST AND FINAL BILL

Name of work: Improvements and Asphalting to Roads at Doddabommasandra, Krishna Temple Surrounding areas in Ward No. 09 (Vidyaranyapura).

Estimated Cost : Rs. 30.00 Lakhs

Head of Account : P-3726 Zonal PublicWorks - POW Works

Name of Agency: Sri Nataraj. T, No/ 02, 1st Main, Amarajyothi Layout, R T Nagar, Bangalore - 32.

Work order No: BBMP/EE/BTP/WO/118/2020-21 Dated: 25.09.2020.

Measurements Recarded on : 07-12-2020

Sl. No	Description	Unit	No.	L	B1	B2	Av.B	D	Qty	Rate	Amount
1	KSRRB 300-1. Earthwork excavation by manual means in ordinary soil involving an average horizontal throw upto 2 meters and an average lift upto 0.5 m, excavated surface leveled and sides neatly dressed, the disposed earth to be leveled neatly after breaking of clods complete as per specifications.									Cum	
	Qty as per Premeasurement vide E-MB Page No. 01 to 02 is =								**369.50**	232.00	**85724.00**
2	Removing and refixing stone slabs of drains and pointing in CM (1:3)									Sqm	
	Qty as per Premeasurement vide E-MB Page No. 03 is =								**1869.21**	106.00	**198136.00**
3	Providing granite slabs of selected quality roughly dressed having a size of 7.5 cms thick and fixed in cement mortar (1:6) including fixing curing ete., complete									Sqm	
	Chamundeshwari Temple Main Road E/S		1	16.20			1.35		21.87		
			1	18.10			1.35		24.44		
			1	12.60			1.35		17.01		
			1	12.80			1.35		17.28		
	Chamundeshwari Temple Main Road W/S		1	22.90			1.35		30.92		
			1	19.50			1.35		26.33		
			1	10.50			1.35		14.18		
	2nd B Cross E/S		1	13.80			1.35		18.63		
			1	15.40			1.35		20.79		
			1	16.50			1.35		22.28		
	W/S		1	15.20			1.35		20.52		
			1	25.60			1.35		34.56		
			1	12.00			1.35		16.20		
	6th Main Road		1	24.30			1.35		32.81		
			1	15.80			1.35		21.33		
			1	26.50			1.35		35.78		
			1	18.50			1.35		24.98		
			1	23.50			1.35		31.73		
			1	22.00			1.35		29.70		
								Total Qty =	**461.30**		
								Qty Limited to =	**460.35**	708.00	**325928.00**

Assistant Engineer
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BBMP, Bangalore - 97

Sl. No	Description	Unit	No.	L	B1	B2	Av.B	D	Qty	Rate	Amount
	Measurements Recarded on : 07-12-2020										
4	Providing and constructing load bearing wall with solid concrete blocks of size 400x150x200 mm having block density not lessthan 1800 kg/m3 and having a minimum average compressive strength 4.00 N/mm2 confirming to IS 2185 (Part) : 2005 and constructed with CM 1:4 , as per IS 2572:2005 including cost of all materials, labour charegs, scaffolding, curing complete as per specifications.									Sqm	
	Chamundeshwari Temple Main Road E/S		2	16.20				0.40	12.96		
			2	18.10				0.40	14.48		
			2	12.60				0.40	10.08		
			2	12.80				0.40	10.24		
	Chamundeshwari Temple Main Road W/S		2	22.90				0.40	18.32		
			2	19.50				0.40	15.60		
			2	10.50				0.40	8.40		
	2nd B Cross E/S		2	13.80				0.40	11.04		
			2	15.40				0.40	12.32		
			2	16.50				0.40	13.20		
	W/S		2	15.20				0.40	12.16		
			2	25.60				0.40	20.48		
			2	12.00				0.40	9.60		
	6th Main Road		2	24.30				0.40	19.44		
			2	15.80				0.40	12.64		
			2	26.50				0.40	21.20		
			2	18.50				0.40	14.80		
			2	23.50				0.40	18.80		
			2	16.80				0.40	13.44		
								Total Qty =	269.20		
								Qty Limited to =	268.80	934.00	251059.00

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	Measurements Recarded on : 07-12-2020										
5	Providing and laying in position plain cement concrete of mix 1:2:4 with cement @ 240kgs, with 20mm and down size graded granite metal coarse aggregates @ 0.69 cum and fine aggregtes @ 0.459cum, machine mixed, concrete laid in layers not exceeding 15 cms. thick, well compacted, for coping. Including cost of all materials, labour, HOM of machinery, curing complete as per specifications.									Cum	
	Bed Concrete										
	Chamundeshwari Temple Main Road E/S		2	15.00			0.45	0.10	1.35		
			2	5.00			0.45	0.10	0.45		
	Chamundeshwari Temple Main Road W/S		2	10.00			0.45	0.10	0.90		
			2	12.00			0.45	0.10	1.08		
			2	12.00			0.45	0.10	1.08		
	Coping Concrete										
	Chamundeshwari Temple Main Road E/S		2	16.20			0.20	0.10	1.30		
			2	18.10			0.20	0.10	1.45		
			2	12.60			0.20	0.10	1.01		
			2	12.80			0.20	0.10	1.02		
	Chamundeshwari Temple Main Road W/S		2	22.90			0.20	0.10	1.83		
			2	19.50			0.20	0.10	1.56		
			2	10.50			0.20	0.10	0.84		
	2nd B Cross E/S		2	13.80			0.20	0.10	1.10		
			2	15.40			0.20	0.10	1.23		
			2	16.50			0.20	0.10	1.32		
	W/S		2	15.20			0.20	0.10	1.22		

	Description	Unit	No.	L	B1	B2	Av.B	D	Qty	Rate	Amount
			2	25.60			0.20	0.10	2.05		
			2	12.00			0.20	0.10	0.96		
						Total Qty =			21.75		
						Qty Limited to =			21.27	5347.00	113731.00

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	Measurements Recarded on : 07-12-2020										
6	Providing granite slabs of selected quality roughly dressed havinf a size of 10 cms thick and fixed in cement mortar (1:6) including fixing curing ete., complete									Sqm	
	B S Slab Covering										
	Chamundeshwari Temple Main Road E/S		1	16.20			0.90		14.58		
			1	18.10			0.90		16.29		
			1	12.60			0.90		11.34		
			1	12.80			0.90		11.52		
	Chamundeshwari Temple Main Road W/S		1	22.90			0.90		20.61		
			1	19.50			0.90		17.55		
			1	10.50			0.90		9.45		
	2nd B Cross E/S		1	13.80			0.90		12.42		
			1	15.40			0.90		13.86		
			1	16.50			0.90		14.85		
	W/S		1	15.20			0.90		13.68		
			1	25.60			0.90		23.04		
			1	12.00			0.90		10.80		
						Total Qty =			189.99		
						Qty Limited to =			189.00	923.00	174447.00

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	Measurements Recarded on : 07-12-2020										
7	KSRB 5-9 : Providing chamfering edges to stone slab 2.5 cms. wide as per specifications. (only chamfered length shall be recorded)									Mtrs	
			352	3.00					1056.00		
									1050.00	58.00	60900.00

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	Measurements Recarded on : 07-12-2020										
8	KSRRB 300-49. Scarifying bituminous course 50mm to 75mm thick along with premix carpet / surface dressing by manual means without disturbing the base and stacking of the debris materials including cost of all labour charges complete as per specifications.									Sqm	
	Qty as per Premeasurement vide E-MB Page No. 04 is =								988.75		
	Qty upto 125%								681.16	91.00	61986.00
	Qty Above 125%								307.59	90.97	27981.00

9	Providing, laying, spreading and compacting crushed stone aggregates of granite / trap / basalt to wet mix macadam specifications including pre mixing the material with water at OMC in mechanical mix plant carriage of mixed method of tipper to site, laying in uniform layers with paver in sub-base/base course on well prepared surface and compacting with vibratory roller to achieve the desired density complete as per specifications.	Cum	

Sl. No	Description	Unit	No.	L	B1	B2	Av.B	D	Qty	Rate	Amoun
	Qty as per Premeasurement vide E-MB Page No. 05 is =								195.56		
	Qty upto 125%								170.29	1910.00	325249.00
	Qty Above 125%								25.27	1908.30	48228.00
10	Providing and applying primer coat with S.S. bitumen emulsion on prepared surface of granular base such as WMM including cleaning of road surface and spraying primer at the rate of 0.60 kg / sqm using mechanical means complete as per specifications.								Sqm		
	Qty as per Premeasurement vide E-MB Page No. 06 is =								988.75		
	Qty upto 125%								681.16	27.00	18391.00
	Qty Above 125%								307.59	28.30	8705.00
11	KSRRB 500-11. Providing and laying **bituminous macadam** on prepared surface with crushed coarse aggregates as per design mix formula for base / binding course including loading of aggregates with F.E. loader, hot mixing of stone aggregates and bitumen in hot mix plant, transporting the mixd material in tipper to paver and laying mixed materials with paver finisher to the required level and grade, rolling by power roller to achieve the desired density, but excluding cost of primer / tack coat including lead, lift and cost of all materials, labour, HOM of machineries complete as per specifications. MORTH /Chapter 5 - using **40/60 TPH capacity H.M.P. with Mechanical paver Gr-II (50 mm to 75 mm) with 3.3 % VG-30 Bitumen**								Cum		
	Qty as per Premeasurement vide E-MB Page No. 07 is =								49.44		
	Qty upto 125%								34.06	5121.00	174434.00
	Qty Above 125%								15.38	4985.03	76657.00
12	Cleaning the existing black topped surface with brooms, soft brushes and finally dusting with old gunny bags and / or compressed air to receive bituminous treatment including cost of all materials, labour, HOM of machineries complete as per specifications.								Sqm		
	Qty as per Premeasurement vide E-MB Page No. 08 is =								988.75	5.00	4944.00
	Measurements Recarded on :	08-12-2020									
13	KSRRB 500-7. Providing and applying tack coat using 80/100 grade bitumen(VG10) on the prepared black topped surfaces at 2.5 kg per 10 sqm, heating bitumen in boiler fitted with spray set (excluding cleaning of road surface) including cost of all materials, labour, HOM of machineries complete as per specifications.								Sqm		
	Chamundeshwari Temple Main Road										
	Ch: 0.00 to 30.00 Mtrs		1	30.00	4.15	3.50	3.83		114.75		
	Ch: 30.00 to 40.50 Mtrs		1	10.50	3.50	2.60	3.05		32.03		
	Ch: 0.00 to 30.00 Mtrs		1	30.00	5.75	5.80	5.78		173.25		
	Ch: 30.00 to 60.00 Mtrs		1	30.00	5.80	6.10	5.95		178.50		
	Ch: 60.00 to 90.00 Mtrs		1	30.00	6.10	6.00	6.05		181.50		
	Ch: 90.00 to 121.50 Mtrs		1	31.50	6.00	7.05	6.53		205.54		
	Ch: 0.00 to 20.00 Mtrs		1	20.00	5.50	5.00	5.25		105.00		
					Total Qty =				990.56		
					Qty Limited to =				988.75	12.00	11865.00

Assistant Executive Engine
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	Measurements Recarded on :	08-12-2020										
14	Providing and laying **bituminous concrete 40 mm thick** with hot mix plant, using crushed aggregates of specified grading, premixed with bituminous binder and filler, transporting the hot mix to work site, laying with a paver finisher to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification clause No. 500.9 complete in all respects complete as per specifications. MORTH Specification No. 509 - **using 40/60 TPH capacity H.M.P. with Mechanical Paver Gr-II (30 mm to 45 mm) with 6 % VG-30 Bitumen**									Cum	
	Chamundeshwari Temple Main Road											

	Description	Unit	No.	L	B1	B2	Av.B	D	Qty	Rate	Amount
	Ch. 00 to 30.00 Mtrs		1	30.00	4.15	3.50	3.83	0.040	4.59		
	Ch: 30.00 to 40.50 Mtrs		1	10.50	3.50	2.60	3.05	0.040	1.28		
	Ch: 0.00 to 30.00 Mtrs		1	30.00	5.75	5.80	5.78	0.040	6.93		
	Ch: 30.00 to 60.00 Mtrs		1	30.00	5.80	6.10	5.95	0.040	7.14		
	Ch: 60.00 to 90.00 Mtrs		1	30.00	6.10	6.00	6.05	0.040	7.26		
	Ch: 90.00 to 121.50 Mtrs		1	31.50	6.00	7.05	6.53	0.040	8.22		
	Ch: 0.00 to 20.00 Mtrs		1	20.00	5.50	5.00	5.25	0.040	4.20		
						Total Qty =			39.62		
						Qty Limited to =			39.55	7248.00	286658.00

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	Measurements Recarded on :	08-12-2020								
15	Road Marking with Hot Applied Thermoplastic Compound with Reflectrising Glass Beads on Bituminous Surface:- Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads at 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes complete as per specifications.								Sqm	
	Chamundeshwari Temple Main Road									
	Chamundeshwari Temple Main Road									
	Ch: 0.00 to 30.00 Mtrs		2	30.00			0.10		6.00	
	Ch: 30.00 to 40.50 Mtrs		2	10.50			0.10		2.10	
	Ch: 0.00 to 30.00 Mtrs		2	30.00			0.10		6.00	
	Ch: 30.00 to 60.00 Mtrs		2	30.00			0.10		6.00	
	Ch: 60.00 to 90.00 Mtrs		2	30.00			0.10		6.00	
	Ch: 90.00 to 121.50 Mtrs		2	31.50			0.10		6.30	
	Ch: 0.00 to 20.00 Mtrs		2	20.00			0.10		4.00	
						Total Qty =			36.40	
						Qty Limited to =			35.00	433.00	15155.00

Assistant Engineer
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	Measurements Recarded on :									
E1	Construction of granular sub-base Grading-V as sub-base and drainage layer by providing coarse graded crushed stone aggregates of granite / trap / basalt material, mixing in a mechanical mix plant at OMC Carriage of mixed material to work site spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the 98% proctor density, complete as per specifications.								Cum	
	Qty as per Premeasurement vide E-MB Page No. 09 is =								148.31	1902.24	282121.00
	Sub Total										2552299.00
	GST @ 12%										306276.00
										Total	2858575.00

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